



Draft for Review

November __, 2015

Reference No. 038443

Mr. Bruce Mangeot
B&G Equipment and Truck Repair, Inc.
1951 Dryden Road
Moraine, Ohio
45439

Dear Mr. Mangeot:

**Re: Summary of Vapor Intrusion Sampling Results
B&G Equipment and Truck Repair – Buildings 8 and 9
South Dayton Dump and Landfill Site, Moraine, Ohio**

GHD (formerly Conestoga-Rovers & Associates [CRA]) prepared this letter to inform you of the results of the vapor intrusion (VI) sampling completed at your property from 2012 to 2015. Sub-slab (SS, space under your building floor) and indoor air (IA) samples were collected in 2012 as part of the VI investigation at the South Dayton Dump and Landfill (SDDL) Site, and from 2013 to 2015 to evaluate the performance of the installed sub-slab depressurization system (SSDS). The sample locations within the B&G buildings (designated as Buildings 8 and 9) are presented on Figures 1 and 2, respectively. GHD is conducting this work on behalf of the companies that have responded to Agency requests for Site investigation and VI studies (Respondents). Oversight is being performed by USEPA.

VI is the migration of volatile chemicals from the subsurface into overlying buildings. VI is a potential concern at any building, existing or planned, located near soil, groundwater, or soil vapor containing solvent- or petroleum-based compounds that may volatilize or chemicals that are combustible.

GHD collected SS and IA samples to determine if solvent- or petroleum-related compounds are present in soil vapor beneath the foundation and in indoor air within the buildings at levels which exceed SS and/or IA screening levels, as established by the Ohio Department of Health (ODH).

The ODH has recommended the screening levels for SS and IA samples. The screening levels represent concentrations of substances that are unlikely to cause harmful (adverse) health effects in exposed people, based on residential exposure. Detections in IA below these levels are not a health concern. The SS screening levels are calculated based on an attenuation factor (AF) to account for the mixing and ventilation that occurs when vapors enter the IA space¹. In November 2015, USEPA proposed to supplement the ODH screening levels for the industrial buildings with SSDSs at the Site

with SS values based on an AF of 33, to reflect current VI guidance for residential buildings [screening levels calculated based on an AF of 33 are referred to as ODH SS screening levels (AF=33)]. GHD collected and submitted samples to TestAmerica Inc. GHD received and validated the results of the laboratory analysis. A copy of the validated analytical results compared to the ODH screening levels (AF=10) can be found in Tables 1 and 2 for Buildings 8 and 9, respectively.

Compounds detected at concentrations greater than the ODH SS screening levels (AF=10;AF=33) and ODH IA screening levels from SS and IA samples are presented below. All of the sample results are reported in units of parts per billion by volume (ppbv).

Table A Summary of Building 8 Sampling Results for B&G Equipment and Truck Repair, Inc.

Building / Location	Sample Type	Sampling Date	Parameter	Detected Concentration (ppbv)	ODH IA Screening Level (ppbv)	ODH SS Screening Level (AF=10; AF=33) (ppbv)
<i>Building 8</i>						
SS-8-A	Sub-slab	01/11/2012	Trichloroethylene (TCE)	1,400	Not Applicable	20; 66
		03/14/2012		960		
		08/07/2012		1,800		
		09/2013		780		
		01/09/2014		220		
		03/10/2014		240		
		02/17/2015		158 / 160		
		07/15/2015		480		
		10/06/2015		1,400		
SS-8-B	Sub-Slab	01/11/2012	TCE	31	Not Applicable	20; 66
		03/14/2012		26		
		08/07/2012		95		
SS-8-C	Sub-Slab	08/07/2012	TCE	35	Not Applicable	20; 66
SS-8-D	Sub-Slab	01/11/2012	TCE	420	Not Applicable	20; 66
		03/14/2012		420 / 350		
		08/07/2012		930		
		09/12/2013		200 / 290		
		01/09/2014		36 / 43		
		07/15/2015		34 / 32		

¹ The 2012 ODH Screening levels were calculated based on an AF of 10, reflective of 2002 USEPA guidance. USEPA revised and issued final VI guidance in 2015 which utilizes an AF of 33 for residential buildings; see "OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Source to Indoor Air (USEPA, June 2015) (Final Vapor Intrusion Guidance)".

IA-8-A	Indoor Air	02/17/2015	Benzene ^[A]	8	2	Not Applicable
IA-8-C	Indoor Air	03/14/2012	Benzene ^[A]	20	2	Not Applicable
IA-8-D	Indoor Air	01/09/2014	Benzene ^[A]	2.3	2	Not Applicable
		02/17/2015		7.3 / 9.1		
IA-8-F	Indoor Air	03/14/2012	Benzene ^[A]	13	2	Not Applicable
		07/15/2015		3.4		
IA-8-Office	Indoor Air	03/14/2012	Benzene ^[A]	26 J	2	Not Applicable
		01/09/2014		2.4		
Building 9						
SS-9-A	Sub-Slab	01/11/2012	TCE	1,800 / 1,800	Not Applicable	20; 66
		03/27/2012		3,100		
		02/17/2015		580		
		07/15/2015		1,700		
SS-9-E	Sub-Slab	05/20/2014	TCE	150	Not Applicable	20; 66
IA-9-A	Indoor Air	03/27/2012	Ethylbenzene ^[A]	270	250	Not Applicable
			m&p-Xylenes ^[A]	1,200	200	
			o-Xylenes ^[A]	390	200	
			TCE	13 J	2	
IA-9-A	Indoor Air	03/10/2014	Benzene ^[A]	17 J	2	Not Applicable
m&p-Xylenes ^[A]	470	200				
IA-9-A	Indoor Air	02/17/2015	Benzene ^[A]	4	2	Not Applicable
IA-9-B	Indoor Air	03/14/2012	m&p-Xylenes ^[A]	420	200	Not Applicable
IA-9-B	Indoor Air	03/10/2014	Benzene ^[A]	8.1	2	Not Applicable
			m&p-Xylenes ^[A]	310	200	
IA-9-B	Indoor Air	02/17/2015	Benzene ^[A]	4.2	2	Not Applicable

Notes:

Value / Value – Result / Duplicate Result

J – Estimated Concentration

[^A] – This compound was either not detected or detected at concentrations less than the ODH screening level in the adjacent sub-slab soil vapor sample, indicating that the indoor air concentration is not due to vapor intrusion

What do these results mean?

Some compounds were detected in IA samples (i.e., benzene in Building 8; ethylbenzene and xylenes in Building 9) at concentrations greater than ODH IA screening levels. These compounds were either not detected or detected at concentrations less than ODH SS screening levels in the co-located SS

soil vapor samples, indicating that the IA concentrations are not due to VI but instead are due to presence in ambient air. VI-related concentrations in IA samples do not exceed screening levels.

The 2012 TCE SS sample results were greater than the ODH SS screening level. TCE was either not detected or detected at concentrations less than the ODH IA screening level in IA samples. These results showed that at the time of each sampling event in 2012, VI was not documented in Building 8, but there was the potential for VI to occur.

The installation of the SSDS in Building 8 was completed on August 21, 2013, with upgrades completed on November 27, 2013. The installation of the SSDS in Building 9 was completed on September 30, 2013. The concentrations of TCE in SS soil vapor decreased significantly since the installation of the SSDSs, yet remain greater than the ODH SS Screening Level (AF=33). Following the installation of the SSDSs, IA concentrations of TCE continued to be less than the ODH IA screening level, which indicates that the SSDSs are mitigating VI from SS soil vapor into IA.

Conclusion

Based on the TCE SS soil vapor sample exceedances of ODH SS screening levels (AF=10 and AF=33), continued operation of the SSDSs for Building 8 and 9 is required and system upgrades should be considered.

Recommendations

As presented on Figure 1, U.S. EPA and GHD propose to install one additional extraction point (EP-5) and two stemlines (EP-3 stemline 2, and EP-5 stemline) in Building 8 in the vicinity of SS-8-A in order to further address the TCE exceedances at that location.

As presented on Figure 2, U.S. EPA and GHD propose to install one additional extraction point (EP-3), and two stemlines (EP-2 stemline, and EP-3 stemline) in Building 9 in the vicinity of SS-9-A in order to further address the TCE exceedances at that location.

In both buildings, GHD will install valves at all extraction points, where possible, to control and reduce the amount of vacuum applied to the sub-slab. GHD notes that it may not be feasible to install valves at all suction points due to the existing system configuration.

We would like to discuss the information and recommendations provided in this letter with you and will be in contact to make arrangements for a meeting.

Thank you for your cooperation. If you have questions related to the sampling or on-going site investigation, please do not hesitate to contact the undersigned.

GHD Services Inc.

Julian Hayward

VC/cb/5

Encl.

cc: Steve Renninger - U.S. EPA Removal Program Manager
Leslie Patterson – U.S. EPA Remedial Program Manager
Jenny Davison – U.S. EPA Remedial Program Manager
Maddie Adams – Ohio EPA, Site Coordinator